



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: PW1217G BYPASS RATIO (-): 8.3
 UNIQUE ID NUMBER: 01P22PW169 PRESSURE RATIO π_{co} (-): 32.7
 COMBUSTOR: TALON X, Block-C
 ENGINE TYPE: TF RATED OUTPUT F_{oo} (kN): 75.7

REGULATORY DATA

CHARACTERISTIC VALUES:	LTO_{mass}/F_{oo} (mg/kN)	LTO_{num}/F_{oo} (particles/kN)	NVPM MASS CONCENTRATION ($\mu\text{g}/\text{m}^3$)
LTO/ F_{oo} AND MAX nvPM _{mass}	35.5	7.49E+14	843
AS % OF CAEP/10 LIMIT	-	-	11.0
AS % OF CAEP/11 LIMIT (InP)	1.2	4.1	
AS % OF CAEP/11 LIMIT (NT)	4.9	8.5	

MEASURED DATA

MODE	POWER SETTING (% F_{oo})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES*		NVPM MASS CONCENTRATION PEAK nvPM _{mass} ($\mu\text{g}/\text{m}^3$)
				EI _{mass} (mg/kg)	EI _{num} (particles/kg)	
TAKE-OFF	100	0.7	0.634	23.0	2.35E+14	
CLIMB OUT	85	2.2	0.524	17.8	2.97E+14	
APPROACH	30	4.0	0.184	0.2	2.07E+13	
IDLE	7	26.0	0.069	0.8	1.21E+14	
LTO TOTAL (kg, mg, number of particles)			248	1934	4.08E+16	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE LTO/ F_{oo} VALUES (mg/kN, particles/kN)				25.5	5.39E+14	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ($\mu\text{g}/\text{m}^3$)				23.0	3.02E+14	655

* Emissions Indices are corrected for thermophoretic loss and fuel hydrogen content

DATA FOR EMISSIONS INVENTORIES (ESTIMATIONS FOR ENGINE EXIT PLANE VALUES)

MODE	POWER SETTING (% F_{oo})	CORRECTED EMISSIONS INDICES	
		EI _{mass_SL} (mg/kg)	EI _{num_SL} (particles/kg)
TAKE-OFF	100	27.8	7.33E+14
CLIMB OUT	85	22.6	1.09E+15
APPROACH	30	0.3	1.50E+14
IDLE	7	1.7	9.34E+14

AMBIENT CONDITIONS

	From		To	
	BAROMETER (kPa)	101.2	102.6	HEAT OF COMBUSTION (MJ/kg)
TEMPERATURE (K)	276.5	293.2	HYDROGEN CONTENT (%mass)	13.78
HUMIDITY (kg water/kg dry air)	0.0011	0.0058	AROMATICS CONTENT (%vol)	18.4
			NAPHTHALENE CONTENT(%vol)	1.64
			SULPHUR CONTENT (ppm by mass)	495

MANUFACTURER: Pratt & Whitney
 TEST ORGANIZATION: Pratt & Whitney
 TEST LOCATION: East Hartford, CT
 TEST DATES: 28/03/2019-01/04/2019

REMARKS

1. Data from certification report PWA-12121
2. Block C combustor
3. nvPM levels in accordance with Annex 16 Vol. II, Chapter 4, Appendix 7 and Appendix 8.